Gridded National Soil Geographic Database (gNATSGO)

NRCS Complete Coverage Soils Database
What is gNATSGO?

**gNATSGO – Gridded National Soil Survey Geographic Database**

- "A composite database providing complete coverage of the best available USDA-NRCS soils information for all areas of the United States and Island Territories."

- For some states we did not produce gNATSGO because they have no areas of ‘NOTCOM’ and no areas with Raster Soil Survey data. Instead, use gSSURGO for these states.

- Version history:
  - Version 1 – 08_2019
  - Version 2 – 03_2020
  - Version 3 – 11_2020
What is gNATSGO?

- Combines 3 USDA-NRCS soil databases into a single database

SSURGO  
STATSGO2  
Raster Soil Survey
Combining Databases Into gNATSGO

STATSGO2 → SSURGO → Raster Soil Survey → gNATSGO
1. **SSURGO**

- Historic NRCS county based flagship product
- Over 100 years of boots on the ground data
- Typically published at a scale of 1:12,000 to 1:24,000

[Click For More Information About SSURGO](https://nrcs.usda.gov)
2. **STATSGO**

- General soil maps
- Minimal field data
- 1:1,000,000 scale in Alaska and 1:250,000 scale for all other areas of the United States and Island Territories

[Click For More Information About STATSGO](nrcs.usda.gov)
3. **Raster Soil Survey (RSS)**

- Next generation soil survey product
- Gridded soil surveys developed with predictive digital soil mapping (DSM) techniques
- Produced for both areas with and without SSURGO
- As of 2019, published RSS only available for small areas of Minnesota, North Dakota, and Vermont
  - Number of RSS are expected to increase in coming years
How gNATSGO Was Built

1. Started with SSURGO
2. Identified areas of SSURGO without soils information and then merged in STATSGO2 for those areas
3. Burned in published RSSs, replacing any SSURGO or STATSGO2 information

 Mostly consists of STATSGO and SSURGO due to limited availability of RSS
Start with Incomplete SSURGO
Fill SSURGO Gaps with STATSGO2
Burn in Raster Soil Survey When Available
What’s in the gNATSGO database?

- Delivered as an ESRI file geodatabase
What’s in the gNATSGO database?

- Contains soil map units formatted as 10m raster
- The vectorized version of the soil map units IS NOT INCLUDED in gNATSGO
What’s in the gNATSGO database?

- Contains standard soil attribute data delivered as a series of interrelated tables
What’s in the gNATSGO database?

- Contains relationship classes that define relationships between tables
What’s in the gNATSGO database?

- Contains a SAPOLYGON layer that shows the boundaries of the soil survey areas.
- Has a field called “Source” which can be used to determine if the data was derived from SSURGO, STATSGO2, or RASS.
How do I work with all those tables?

Grab the gSSURGO Tools

- Free USDA-NRCS ArcGIS Desktop Toolbox
- Rapidly create thematic maps of soil properties and interpretations over large geographic areas
- Work on both State and Continental (CONUS) gNATSGO Databases
- Replicate thematic map functionality of Web Soil Survey (WSS) & Soil Data Viewer (SDV)
  - NOTE – As of 2019, these tools do not work in ArcPro

Download gSSURGO Toolbox
Download gSSURGO Toolbox User Guide
Download gSSURGO Mapping Quick Guide
Working With gNATSGO

gSSURGO Tools

- Most customers will only need to use the **Create Soil Map tool**
- This tool replicates soil data viewer and web soil survey functionality
- Allows customers to generate thematic maps of soil properties and interpretations
Working With gNATSGO

gSSURGO Tools – Create Soil Map

1. Select the 10 meter gNATSGO
2. Choose the Soil Data Viewer Attribute folder, which is used to categorize the specific attributes.
Working With gNATSGO

gSSURGO Tools – Create Soil Map

3. Choose the attribute that you want to make a thematic map of
Working With gNATSGO

gSSURGO Tools – Create Soil Map

4. Choose aggregation method and other optional constraints
   - Default aggregations typically suffice
Working With gNATSGO

- Run tool and produce thematic map
  - **NOTE:** When generating ratings of soil interpretations, the user will have to manually symbolize the output layer

Percent Hydric Rating By Map Unit
gSSURGO Tools – List Available Soil Maps

- Complimentary to the Create Soil Map tool
- Lists all possible soil maps, categorized by SDV folders
- Runs quick
- Output can be copied and pasted into Microsoft Word
Will gNATSGO Be Updated Annually?

- Yes, we have been releasing a new version sometime after each annual SSURGO refresh.
Contact For Technical Assistance

To obtain technical information about the use of soil data, please contact the NRCS State Soil Scientist in your state, or the Soils Hotline Staff at SoilsHotline@lin.usda.gov
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